

## A new genus with two new species of Colombian harvestmen (Opiliones: Stygnidae: Stygninae)

OSVALDO VILLARREAL,<sup>1, 2</sup> ADRIANO B. KURY,<sup>1</sup> AND PÍO A. COLMENARES<sup>3</sup>

### ABSTRACT

*Fortia*, gen. nov., a new genus of Stygnidae with two new Colombian species, is diagnosed and described. Two possibly sympatric species *Fortia jedi*, sp. nov., and *Fortia sith*, sp. nov. (both from the Sierra Nevada de Santa Marta, Magdalena, Colombia), are described and illustrated. Relationships of the new genus are discussed.

### INTRODUCTION

The family Stygnidae is a group of primarily mid-sized harvestmen of the superfamily Gonyleptoidea, with 130 species, and is most diverse in Brazil (61 species), Venezuela (24 species), and Colombia (13 species). They belong to the unnamed grade (paraphylum) of Gonyleptoidea, which lacks a well-defined flat ventral plate (as opposed to the clade Laminata, which includes the conspicuous cosmetids and gonyleptids), and instead has the setigerous region of truncus divided into a basal swollen malleus and a distal trapezoid lamina parva (Kury, 2014; Kury and Villarreal, 2015).

Although frequently associated with forests, stygnid harvestmen inhabit a wide range of microhabitats, such as cryptic environments under fallen rocks and trunks, undergrowth, ferns or palm petioles (e.g., Villarreal and Machado, 2011, Villarreal et al., 2019a),

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<sup>1</sup> Laboratório de Aracnologia, Departamento de Invertebrados, Museu Nacional/UFRJ, Rio de Janeiro, Brazil.

<sup>2</sup> Museo del Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Aragua, Venezuela.

<sup>3</sup> Division of Invertebrate Zoology, American Museum of Natural History, New York.

or within the moss and plant debris that accumulates on tree barks, arborescent palms, and short trees. To a lesser extent, there are even some records of individuals living in caves (Pinto-da-Rocha, 1990, Villarreal and Rodríguez, 2006, Villarreal et al., 2019b). Stygnid harvestmen inhabit most biomes on the northern portion of South America and the Lesser Antilles.

A systematic review of the family including a hypothesis of its generic relationships was published over two decades ago (Pinto-da-Rocha, 1997), dividing the group into three subfamilies. The monogeneric *Nomoclastinae* is now considered a separate family (see comments below). The remaining species were arranged in a symmetrical topology containing the subfamilies *Heterostygninae* and *Stygninae*, both in a trichotomic relationship with the monotypic genus *Gaibulus* (Pinto-da-Rocha, 1997). Later, Pinto-da-Rocha and Villarreal (2009) reexamined the generic relationships within *Stygninae* resulting in a slightly different hypothesis, with *Gaibulus* nested within *Stygninae*. However, no taxonomic action was proposed regarding the status of the genus, due to the scarce representation of genera outside that subfamily in the analysis. Bragagnolo (2013) partially followed the proposal of those authors, presenting, however, some modifications in an alternative hypothesis for *Stygninae*, with focus on relationships within the genus *Protimesius* Roewer, 1913.

The systematic position of *Nomoclastidae* was assessed by Kury and Villarreal (2015), elevating this group to family level, leaving the *Stygnidae* only with two subfamilies: *Heterostygninae* and *Stygninae*. Kury and Villarreal (2015) described the monotypic genus *Jabbastygnus* Kury and Villarreal, 2015, placing it within *Stygninae*, and pointing out the need for a new phylogenetic analysis for the family.

The aim of this article, far from solving those phylogenetic issues, is to discuss the relationships of two hitherto undescribed and possibly sympatric species from Sierra de Santa Marta, in the coastal region of Colombia, whose genital morphology revealed a morphological proximity with the recently described genus *Jabbastygnus*, despite differences in their external morphology.

## MATERIAL AND METHODS

The material examined here is deposited in the American Museum of Natural History (AMNH, curator: Lorenzo Prendini). Pictures at different focal planes were taken as a Z-stack with a Nikon SMZ18 automated stereomicroscope and then assembled into a focused image using NIS-Elements V4.60. Line drawings were made using a Nikon SMZ1500 stereomicroscope with camera lucida, and then vectorized. In addition, measurements were taken with an ocular reticle and presented in mm, referring to maximum length. Setiferous tubercles on pedipalps and cheliceral teeth are given in proximal to distal order (i= small, I= large, \_=gap). Color description refers to specimens preserved in ethyl alcohol. The description pattern follows Villarreal et al., 2019b, the integumentary ornamentation follows DaSilva and Gnaspini (2010), the terminology for chaetotaxy of penis lamina parva and malleus follows Kury and Villarreal (2015) and terminology of dorsal scutum outline types follows Kury and Medrano (2016).

Abbreviations: **Co**, coxa; **DS**, dorsal scutum; **DSL**, dorsal scutum length; **Fe**, femur; **ID**, interocular distance; **LP**, lamina parva (distal setigerous region of penis); **MS A1–A3**, basal macrosetae on VP; **MS B**, ventrobasal macrosetae on VP; **MS C1–C3**, distal macrosetae on VP; **MS D1**, dorsolateral subdistal small macrosetae on VP; **MS E1–E2**, ventral subapical macrosetae on VP; **MSW**, dorsal maximum scutum width; **Mt**, metatarsus; **Pa**, patella; **Ta**, tarsus; **Ti**, tibia; **Tr**, trochanter; **VP**, ventral plate (penis).

## TAXONOMIC ACCOUNTS

Class Arachnida Lamarck, 1801

Order Opiliones Sundevall, 1833

Family Stygnidae Simon, 1879

Subfamily Stygninae Simon, 1879

***Fortia***, gen. nov.

**DIAGNOSIS:** The new genus can be distinguished from *Jabbastygnus* by: (1) MS A1–A3 located on a distinctive lobe (figs. 25, 26, 28, 29) (not so in *Jabbastygnus*); (2) armature of carapace, with a high mound with an acute spine on top (figs. 2, 5, 7, 13, 16, 18) (with an irregular monticle in *Jabbastygnus*); (3) dorsal scutum outline type epsilon (figs. 1, 6, 12, 17) (in *Jabbastygnus* it is type zeta); (4) mesotergum with three scutal areas (figs. 1, 6, 12, 17) (unlike *Jabbastygnus*, four areas, although areas III–IV are partially fused in the median portion); (5) scutal area III with a pair of high acuminate spines (figs. 1, 4, 5, 7, 12, 15, 16, 18) (unlike *Jabbastygnus*, with a pair of small tubercles); (6) scutal yellowish spots, metallic and shiny (figs. 1, 2, 12, 13) (unlike *Jabbastygnus*, with spots, when present not metallic or shiny — see comments above); (7) free tergites II–III with a median pair of larger acuminate tubercles (figs. 1, 4, 6, 12, 15, 17) (unlike *Jabbastygnus*, with a row of similar tubercles). (8) Stylus without dorsal process (figs. 26, 29) (present although reduced in *Jabbastygnus*). (9) MS C1–C3, short and slightly thickened (figs. 25, 26, 28, 29), unlike *Jabbastygnus* (thin and slender). (10) MS E1 small and MS E2 enlarged (figs. 26, 27, 29, 30) (like *Auranus*; unlike *Jabbastygnus*, with MS E1–E2 enlarged and similar; unlike *Ricstynus*, with MS E1–E2 extremely reduced).

**REMARKS:** Because of its genital morphology, the new genus is primarily compared with the genus *Jabbastygnus*, with which shares the following characters: LP with a flat, rounded, subquadrangular platform (figs. 25–30) + a pair of erect middorsal lobes (fig. 25) (shared with *Auranus hehu* Pinto-da-Rocha and Tourinho, 2012, and *A. parvus* Mello-Leitão, 1941, lobes absent in *Fortia sith* gen. nov., sp. nov.); separated from truncus by a deeply multiwrinkled toroidal region (figs. 25–30) (shared with *Auranus hehu*, *A. tepui* Pinto-da-Rocha and Tourinho, 2012, and *Jabbastygnus*); MS A1–A3 located dorsally (figs. 26, 29), close to each other, forming a slanted row widely separated from MS B, which is ventrally inserted; interocular mound armed (figs. 2, 5, 7, 13, 16, 18) (shared with *Jabbastygnus* and *Ricstynus*); and dorsal scutum with yellowish spots (figs. 1, 2, 12, 13). Yellowish spots on dorsal scutum have not been previ-

TABLE 1. Selected taxonomic characters of Stygninae genera.

	DS, out- line shape	DS, white spots	Interocular region, armature	Mesotergal area III, armature	Mesotergal areas, number	Leg III–IV, tarsal process	Stylus, dorsal process	Truncus, multi- wrinkled region
<i>Actinostygnoides</i> *	Iota	absent	unarmed	2 spines	4	absent	?	absent
<i>Auranus</i>	Epsilon/ Iota	absent	absent	1–2 spines	3	absent	absent/ present	absent
<i>Fortia</i> gen. nov.	Epsilon	present	spine	2 spines	3	present	absent	present
<i>Iguarassua</i> *	Eta	absent	unarmed	2 tubercles	3	absent	?	?
<i>Jabbastygnus</i>	Zeta	absent/ present	spine	2 tubercles	4	present	present	present
<i>Jime</i>	Iota	absent	spine	2 spines	3	absent	absent	absent
<i>Kaapora</i> *	Eta	absent	absent	unarmed	4	present	?	?
<i>Metaphareus</i> *	Eta	present	monticle	2 spines	3	present	?	?
<i>Niceforoiellus</i> *	Epsilon	absent	spine	2 spines	3	?	?	?
<i>Obidosus</i>	Epsilon/ Iota	absent	low mon- ticle/ absent	2 spines	3	present	present	absent
<i>Paraphareus</i> *	Iota	absent	unarmed	unarmed	4	present	?	?
<i>Phareus</i>	Zeta	absent	low mon- ticle/ unarmed	2 spines	4	present	absent	absent
<i>Pickeliana</i>	Epsilon	absent	absent	2 spines	3	present but reduced	present	absent
<i>Planophareus</i> *	Eta	absent	low mon- ticle	unarmed	4	absent	?	?
<i>Protimesius</i>	Epsilon/ Iota	absent	unarmed	2 spines/ 2 tubercles	3	present but reduced	present	absent
<i>Ricstygnus</i>	Zeta	absent	spine	2 tubercles	4	present	present	absent
<i>Sickesia</i>	Epsilon	absent	spine	2 spines	3	present	present	absent
<i>Stenophareus</i>	Epsilon?	absent	unarmed	2 tubercles	4	present	absent	absent
<i>Stenostygnoides</i>	Epsilon?	absent	unarmed	2 spines	4	present but reduced	present	absent
<i>Stygnus</i>	Epsilon	absent	spine	2 spines	3	present	present	absent
<i>Verrucastygnus</i>	Iota	absent	unarmed	2 spines	4	absent	absent	absent

\* Males are unknown.

ously recorded in *Jabbastygnus* (Kury and Villarreal, 2015), however, additional material examined (ICN–AO) showed to have a small yellowish spot in the form of two crescents in the posterior area of mesotergal area IV. Additionally, a detailed comparison with all other genera of Stygninae is included in table 1.

**ETYMOLOGY:** From reconstructed Vulgar Latin noun *fortia* (force, strength, might), which is ultimately the origin of the English word *force*, here referring to the biological/metaphysical/spiritual power depicted in the fictional universe of the epic space-opera *Star Wars* (initiated with the 1977 movie of the same name by George Lucas) and relating to the contrasting species, which are juxtaposed in a yin-yang dualistic relationship as contrary forces.

**INCLUDED SPECIES:** *Fortia jedi*, sp. nov. (Magdalena, Colombia) (type species) and *Fortia sith*, sp. nov. (Magdalena, Colombia). Both species occur apparently in sympatry, separated by altitude. However, as the present sampling is minimal, the hypothesis of altitudinal allopatry remains to be verified.

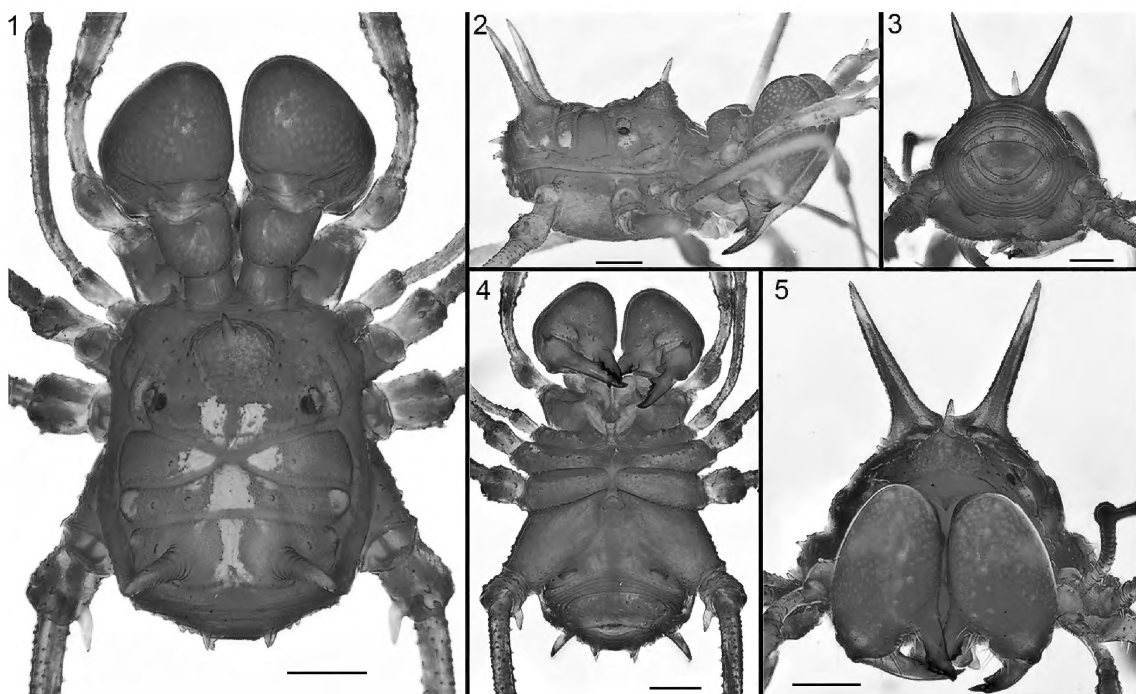
### *Fortia jedi*, sp. nov.

Figures 1–11, 25–27

**TYPE DATA:** ♂ holotype (AMNH\_IZC 00146658), COLOMBIA, Magdalena, Sierra Nevada de Santa Marta, trail from San Pedro de la Sierra. 2300 m. C.W.D. Gibson and R.J. Robins.

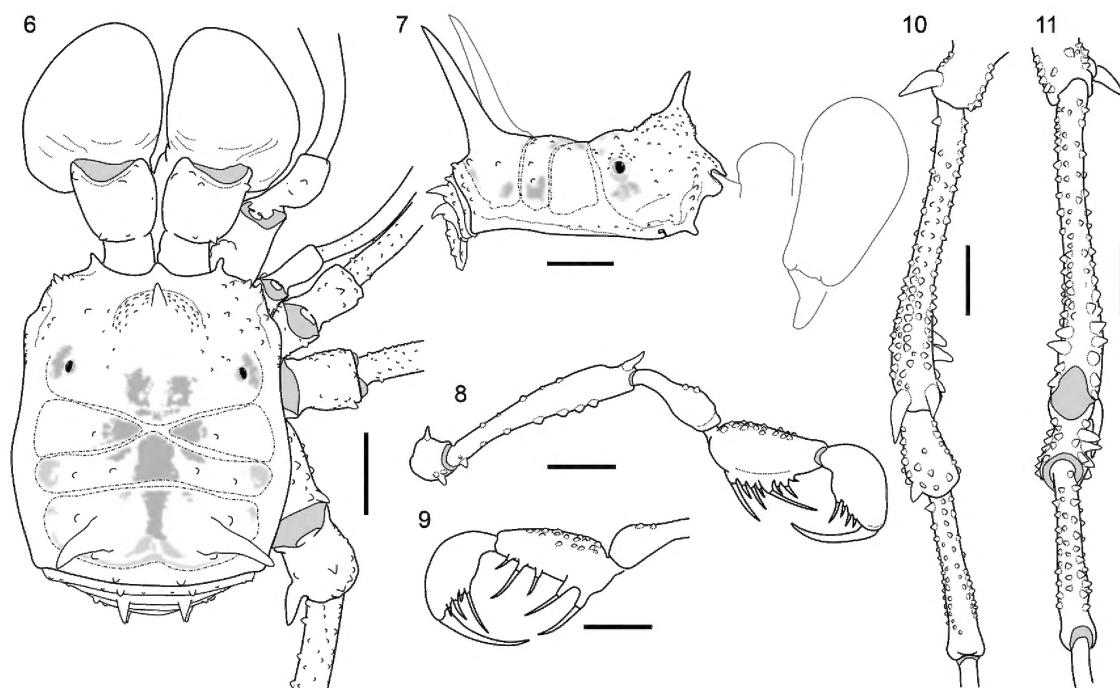
**DIAGNOSIS:** *Fortia jedi* differs from the only other congeneric species by the pattern of the spots on the dorsal scutum: the presence of five main median spots (two on the posterior border of carapace, two in the median region of both sides of area I and one median large spot on the median region of area II) forming a rough pentagon (figs. 1, 6) (unlike *F. sith*, a median rectangular spot on area II and with two small points on the internal corner of area I) (figs. 12, 17); the presence of spots laterally to the eyes and in the posterior region of carapace (absent in *F. sith*); absence of yellowish spots on lateral border of area I (presents in *F. sith*); by males femur, patella and tibia III normally thickened, not abruptly differentiated from leg II (in *F. sith* both legs III and IV are thickened); and the ornamentation of the legs IV of the males, trochanter with a large apical retrolateral apophysis (figs. 10, 11) (reduced to a short spine in *F. sith*), femur without a retrolateral row of large tubercles (unlike *F. sith*, which has a retrolateral row of large tubercles, decreasing in size distally) (figs. 10, 11, 23, 24).

**DESCRIPTION: Measurements.** DSL = 4, DSW = 3.4, ID = 2; Pedipalp: Co = 0.9, Tr = 0.9, Fe = 2.9, Pa = 1.1, Ti = 1.7, Ta = 1.4, total = 8.9; Leg IV: Fe = 5.1, Pa = 1.4, Ti = 2.5, Mt = 4.7, total = 13.7. **Dorsum** (figs. 1, 6). DS outline epsilon. Anterior margin of prosoma with 3–4 anterolateral tubercles; cheliceral sockets shallow, between two short processes. Eyes separated into two small mounds with some anterior granules, placed posteriorly on the carapace. Interocular region with small granules and one central high mound, placed slightly forward on carapace and covered with sparse granules, ending with a high spine on top. Lateral margin with a row of minute granules. Mesotergum divided into three areas: I divided medially into two triangular halves, with one small granule on each side; II unarmed and entire, with only two granules on each side, medially invading area I and reaching the carapace; III with two small tubercles on each side and a pair



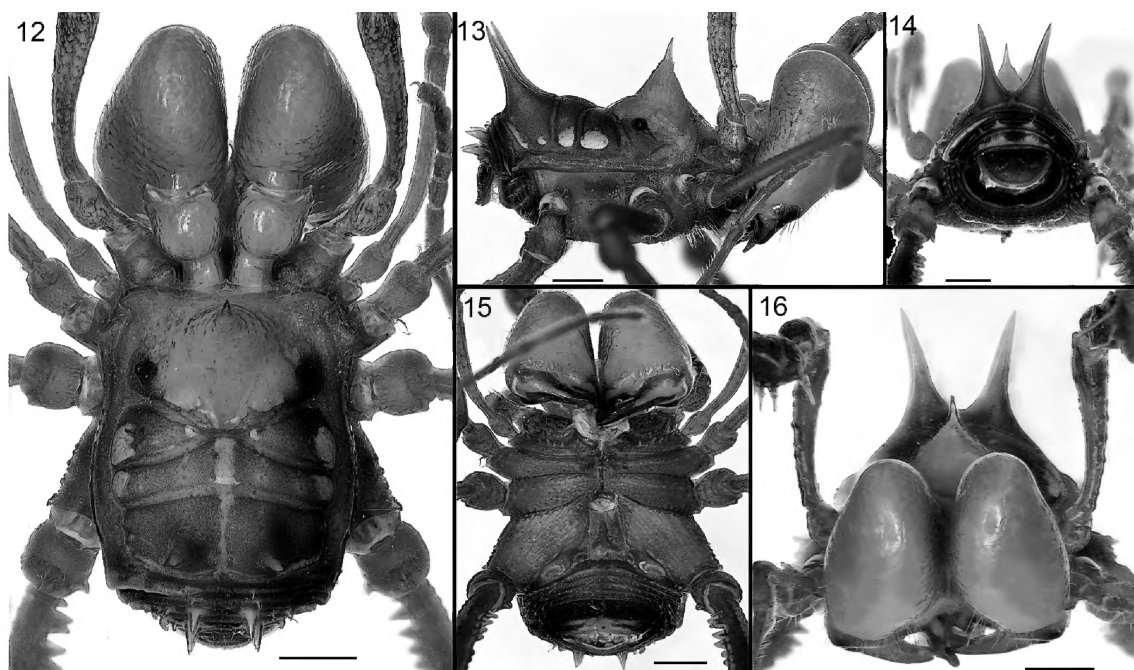
FIGURES 1–5. *Fortia jedi* gen. nov., sp. nov.; from Santa Marta (type locality, AMNH). 1, 2, 4. Habitus: dorsal, right lateral, and ventral views. 3. Free tergites, sternites and anal operculum: posterior view. 5. Chelicerae and dorsal scutum: frontal view. Scale bars: 1 mm.

of paramedian high spines. Posterior margin slightly convex, with two small tubercles. Free tergites I–III with a row of granules, and a paramedian pair of large tubercles (I) and acuminate short spines (II>III). **Venter** (fig. 3). Coxa I with a row of 7–8 conspicuous tubercles; II–III with 2–3 median rows of granules and a small apical tubercle; IV densely granulated. Genital operculum finely granulated. Free sternites with a row of minute granules. **Chelicerae** (figs. 1–3, 5, 6). Segment I with five small tubercles on bulla; II swollen, with scattered granules on anterior side, fixed finger with four distal teeth (Iiii); mobile finger with a large basal tooth and with three distal teeth (I\_iii). **Pedipalps** (figs. 8, 9). Coxa dorsally with a proximal low hump with three tubercles on it; ventrally with two conspicuous tubercles. Trochanter with one dorsal tubercle, and one tubercle and two granules on the ventral side. Femur thin and curved in the proximal third, contouring the cheliceral hand, and thicker and straighter in the two distal thirds; dorsally with a row of four granules placed on distal half and an apical apophysis; an ectal and a mesal row of tubercles, the later ones being more noticeable; ventrally with a proximal prominent tubercle, and a row of seven spaced tubercles. Patella slightly swollen distally, with two dorsal small tubercles, ventrally smooth. Tibia dorsally with abundant tubercles, ventrally smooth; tibia mesal Iiili, ectal Iiili. Tarsus dorsally and ventrally smooth; tarsus mesal Iiili, ectal Iiii. **Legs** (figs. 10, 11). Coxae I–II with a prolateral bifid tubercle and a retrolateral tubercle; III with a prolateral tubercle; IV with sparse prolateral small tubercles and an apical larger and conical tubercle. Trochanter I dorsally smooth and one retrolateral granule; II with one dorsal tubercle and sparse minute granules, two retrolateral small tubercles; III with sparse granules and a retroapical tubercle; IV



FIGURES 6–11. *Fortia jedi* gen. nov., sp. nov.; from Santa Marta (type locality, AMNH). 6–7. Habitus, dorsal and right lateral views. 8–9. Right pedipalp, ectal and mesal views (only tibia and tarsus). 10–11. Right leg IV, dorsal and ventral views. Scale bars: 1 mm.

with sparse prolateral, dorsal and retrolateral low tubercles, one slightly larger dorsoapical tubercle, and a large retrolateral apical apophysis. Femora I–II with retroventral and proventral rows of granules; II with a dorsoapical apophysis; III with proventral and retroventral rows of low tubercles, one retroventral row of tubercles increasing in size distally, other rows with granules and a dorsoapical apophysis; IV slightly curved, distally swollen, with a dorsal, prodorsal, retro-dorsal, and retrolateral rows of tubercles of relatively equal size, one proventral and one retroventral row of tubercles increasing in size distally, as well as two prodorsal and retrodorsal apical apophyses. Patella I granulated; II–III evenly covered with low tubercles; IV covered with tubercles larger than those in III, more noticeable on ventral side, with two dorsoapical conspicuous tubercles and a retroventral and retrolateral group of six strong tubercles almost forming a row. Tibiae I–II slightly thicker distally, while III–IV are visibly thicker distally; I smooth; II–III with rows of noticeable granules; IV with rows of tubercles: a prolateral row of small tubercles, a retrolateral row of tubercles, two ventral rows of slightly larger tubercles increasing in size distally, and two dorsal rows of tubercles. Metatarsi I–IV smooth. Basitarsus I with basal segment slightly swollen. Tarsal process present. Tarsal claws III–IV subparallel, unpectinated. Tarsal segmentation: 7(3)/15(3)/6(3)/7(3). **Penis** (figs. 25–27). Truncus subapically encircled by multiple small wrinkles dorsally and laterally, along with a few thick ventral folds. Malleus with two dorsolateral lobes, forming a dorsal concavity where the glans rests. Malleus lobes contain MS A1–A3 that form a dorsolateral arch and MS B, which continues the same arch but is separated by a wide gap and inserted ventrally. MS A1–A3 larger than MS B. Lamina parva formed by: (1) a columnar



FIGURES 12–16. *Fortia sith* gen. nov., sp. nov.; from Santa Marta (type locality, AMNH). **12, 13, 15.** Habitus: dorsal, right lateral, and ventral view. **14.** Free tergites, sternites and anal operculum: posterior view. **16.** Chelicerae and dorsal scutum: frontal view. Scale bars: 1 mm.

base, slightly compressed laterally bearing MS C–E; (2) a concave subquadrangular platform; and (3) a pair of erect middorsal lobes. MS D1 small, dorsolateral, at junction glans/stylus; MS C1–C3 dorsally slightly curved and flattened, forming a transverse row just below platform; MS E1 short, MS E2 long, both pairs forming a rectangle in ventral view. **Coloration** (in alcohol, figs. 1–5). Dorsal scutum, chelicerae, and pedipalps pale yellow, legs slightly translucent. Dorsal scutum with metalized spots on ectal side of eyes, posterior zone of carapace, internal corners of area I, median zone and lateral border of area II, and median zone and posterior border of area III.

**FEMALE:** Unknown.

**DISTRIBUTION:** Known only for the type locality.

**ETYMOLOGY:** Noun in apposition from the neologism *jedi*, a monastic order of academics and peacekeepers, users of the *light* side of the energy field known as *The Force* in the Star Wars fictional universe. Specific epithet in reference to the light coloration of the type specimen.

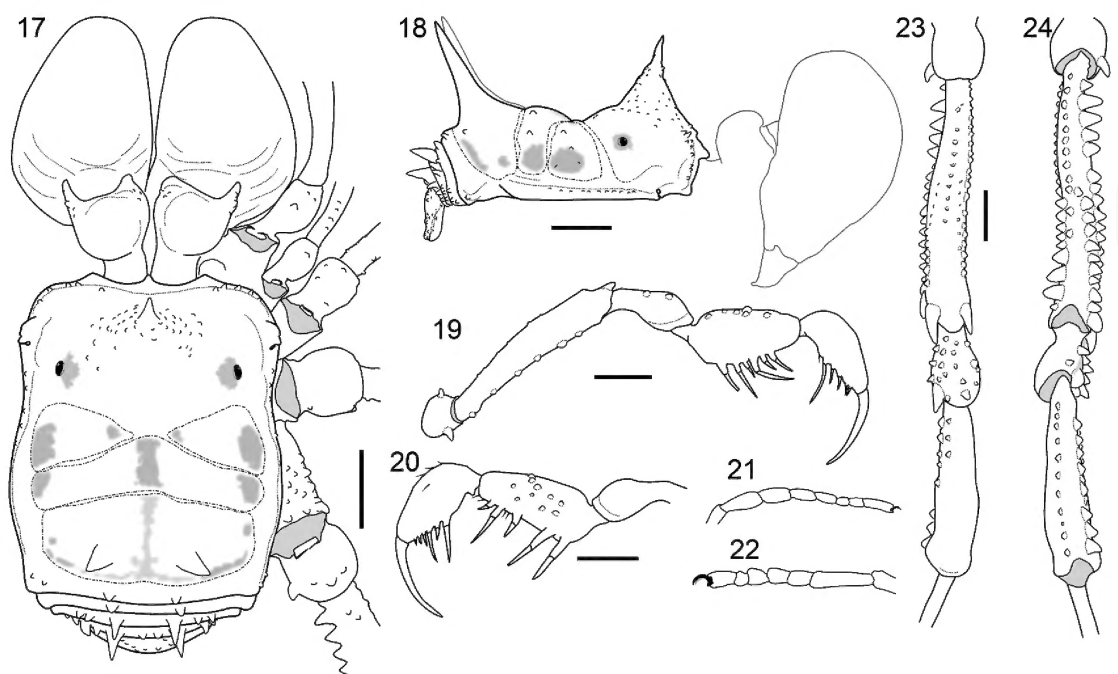
***Fortia sith*, sp. nov.**

Figures 12–24, 28–30

**TYPE DATA:** ♂ holotype (AMNH\_IZC 00146659), COLOMBIA, Magdalena, Sierra Nevada de Santa Marta, trail from San Pedro de la Sierra, 2800 m. Dec. 1974–Jan 1975. C. Gibson and R. Robins. From tank of bromeliad *Vriesea capituligera*.

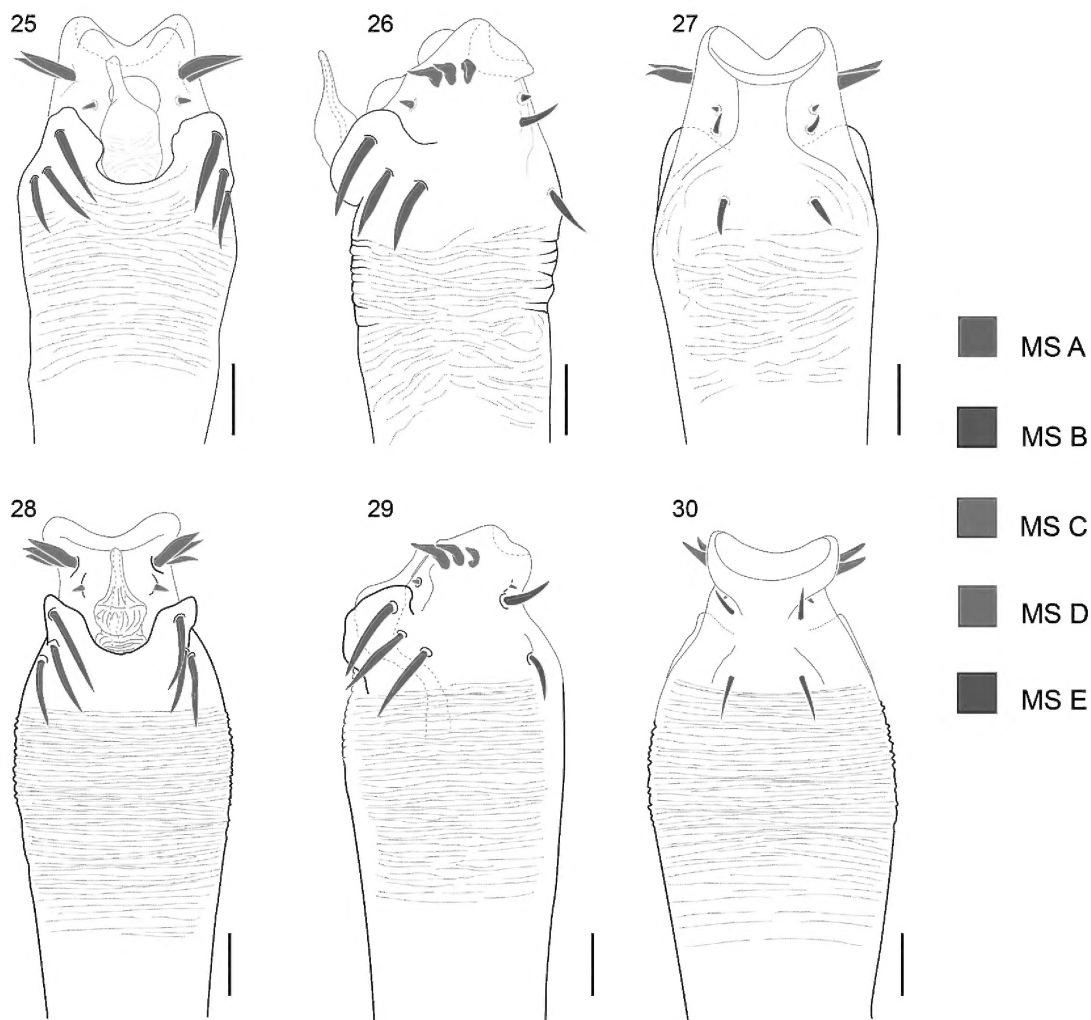
**DIAGNOSIS:** See diagnosis in *F. jedi*, sp. nov.





FIGURES 17–24. *Fortia sith* gen. nov., sp. nov.; from Santa Marta (type locality, AMNH). 17–18. Habitus, dorsal and right lateral views. 19–20. Right pedipalp, ectal and mesal views (only tibia and tarsus). 21–22. Right tarsus I and IV: retrolateral and prolateral views. 23–24. Right leg IV, dorsal and ventral views. Scale bars: 1 mm.

**DESCRIPTION: Measurements.** DSL = 4.2, DSW = 3.6, ID = 2.3; Pedipalp: Co = 0.7, Tr = 0.9, Fe = 3.2, Pa = 1.25, Ti = 1.9, Ta = 1.6, total = 9.55; Leg IV: Fe = 4.8, Pa = 1.5, Ti = 3.4, Mt = 5.1, total = 14.8. **Dorsum** (figs. 12, 17). DS outline epsilon. Anterior margin of prosoma with five anterolateral tubercles; cheliceral sockets shallow. Eyes separated into two small mounds with some anterior granules, placed posteriorly on carapace. Interocular region with small granules and one central high mound, placed slightly forward on the carapace and covered with sparse granules, ending with a high spine on top. Lateral margin with a row of minute granules. Mesotergum divided into three areas: I divided medially into two triangular halves, with one small granule on each side; II mostly smooth, with only two granules on each side, invading medially area I and reaching carapace; III with one small tubercle on each side and a pair of paramedian high spines. Posterior margin slightly convex with two paramedian small tubercles. Free tergite I with a row of granules, and a paramedian pair of tubercles, II–III with a row of tubercles and a pair of acuminate short spines of roughly the same length. **Venter** (fig. 14). Coxa I with a row of five tubercles and an apical wide tubercle; II–III with one median row of small tubercles and sparse granules; IV densely granulated. Genital operculum finely granulated. Free sternites with a row of small granules. **Chelicerae** (figs. 12–14, 16, 17). Segment I with some setiferous granules on ectal and mesal sides of bulla; II swollen, with scattered setiferous granules on anterior side, fixed finger with a distal keel with four low barely distinguishable teeth; mobile finger with a large basal tooth and with three distal teeth (I\_III). **Pedipalps** (figs. 19, 20). Coxa dorsally with a proximal low hump



FIGURES 25–30. *Fortia* gen. nov.; Apical portion of the penis, dorsal, lateral and ventral views. 25–27. *F. jedi* gen. nov., sp. nov.; from Santa Marta (type locality; AMNH). 28–30. *F. sith* gen. nov., sp. nov.; from Santa Marta, (type locality; AMNH). Scale bars: 0.1 mm.

with three tubercles on it; ventrally with two conspicuous tubercles, one central and one apical. Trochanter with one dorsal and one ventral tubercle. Femur thin, proximal third curved, contouring the cheliceral hand, and distal third swollen; dorsally with a row of setiferous granules and an apical tubercle; an ectal and a mesal row of granules; ventrally with a row of six equally spaced tubercles. Patella distally swollen, with two dorsal small tubercles, ventrally smooth. Tibia dorsally with sparse small tubercles, ventrally smooth; tibia mesal IliIi, ectal IliIi. Tarsus dorsally and ventrally smooth; tarsus mesal Iliiii, ectal iliiii. **Legs** (figs. 21–24). Coxae I with two dorsal tubercles, one anterior and one posterior; II with an anterodorsal tubercle; III smooth; IV with sparse pro-lateral small tubercles and an apical larger and conical tubercle. Trochanter I dorsally smooth and one retrolateral granule; II with one dorsoapical conical tubercle and sparse minute granules,

sparse retrolateral granules; III with sparse granules and a retroapical tubercle; IV with sparse prolateral, dorsal, and retrolateral granules, one slightly larger dorsoapical tubercle and a retrolateral spine. Femora I–II with retroventral and proventral rows of minute granules; II with pro and retrodorsal apical apophysis; III with one prodorsal and one prolateral row of small tubercles, a proventral row of tubercles, a retroventral row of tubercles increasing in size, a retrolateral row of tubercles decreasing in size distally, apically with a prodorsal tubercle and a retrodorsal spine; IV distally swollen, with an incomplete dorsal, prodorsal, retrodorsal, and prolateral row of small tubercles, one proventral and one retroventral row of tubercles significantly increasing in size distally, and a retrolateral row of large tubercles decreasing in size distally, also two pro- and retrodorsal spines. Patella I–II granulated; III evenly covered with low tubercles; IV evenly covered with tubercles larger than those in III except for the ventral side, with large retrodorsal and retroventral apical tubercles. Tibiae I–II thin, slightly thicker distally, while III–IV are visibly stronger and swollen distally; I–II with rows of granules; III with rows of small tubercles on dorsal, prolateral, and retrolateral surfaces, and a retroventral row of tubercles increasing in size distally; IV with rows of small tubercles on dorsal, prolateral, and retrolateral surfaces, also a proventral row of tubercles and a retroventral row of larger tubercles increasing in size distally. Metatarsi I–IV smooth. Basitarsus I with the first two basal segments slightly swollen. Tarsal process present. Tarsal claws III–IV subparallel, unpectinated. Tarsal segmentation: 7(3)/14(3)/6(3)/7(3). **Penis** (figs. 28–30). Truncus subapically thickened and encircled by multiple small wrinkles. Malleus with two dorsolateral lobes, forming a dorsal concavity where the glans rests. Malleus lobes contain MS A1–A3 that form a dorsolateral arch and MS B forms part of the same arch, but is separated by a wide gap and inserted ventrally. MS A1–A3 larger than MS B. Lamina parva formed by: (1) a columnar base, slightly compressed laterally bearing MS C–E; and (2) a concave subquadrangular platform; middorsal lobes absent. MS D1 small, dorsolateral, at the junction glans/stylus; MS C1–C3 dorsally slightly curved and flattened, forming a transverse row just below platform; MS E1 short, MS E2 long, both pairs forming a trapezium isosceles in ventral view. **Coloration** (in alcohol, figs. 12–16). Dorsal scutum, cheliceral segment I, and legs I–II brown. Cheliceral segment II reddish brown, with a light reticle on the majority of its surface, and a dark reticle on the basal region. Pedipalps dark brown with a darker reticle. Legs III–IV dark brown. Dorsal scutum with light, metallic spots on internal corners and lateral border of area I, median zone and lateral border of area II, and median zone, lateral border and posterior border of area III.

**FEMALE:** ♀ paratype (AMNH\_IZC 00146660), same data as holotype. **Measurements.** DSL = 4.14, DSW = 3.6, ID = 1.9; Pedipalp: Co = 1.02, Tr = 0.6, Fe = 2.62, Pa = 1.3, Ti = 1.7, Ta = 1.3, total = 8.54; Leg IV: Fe = 3.86, Pa = 1.2, Ti = 2.5, Mt = 4.2, total = 11.76.

**FEMALE DESCRIPTION:** Similar to male, except chelicera not swollen; ornamentation of leg IV conspicuously less developed; basitarsus I not swollen.

**DISTRIBUTION:** Known only for the type locality.

**ETYMOLOGY:** Noun in apposition from neologism *sith*, an ancient monastic and kraterocratic organization devoted to the *dark* side of the energy field known as *The Force*, and main antagonists of the Star Wars fictional universe. Only this time the sith apparently has the high ground. Specific epithet in reference to the dark coloration of the type specimens.

## DISCUSSION

The current taxonomic knowledge about the family Stygnidae is relatively satisfactory when compared to other groups of Neotropical harvestmen, and only few changes at supra-specific levels have been made in recent years. The first analysis of the phylogenetic relationships within the family dates from Pinto-da-Rocha (1997). Two subsequent analyses on the subfamily Stygninae have slightly modified the original proposal, while based on the same basic character survey (Pinto-da-Rocha and Villarreal, 2009, Bragagnolo, 2013). On the other hand, the monophyly of Stygninae has been only timidly questioned (Kury and Villarreal, 2015) and the phylogenetic position of at least some poorly known genera remain to be studied (e.g., *Metaphareus*, *Kaapora*, *Nanophareus*, *Nicephoroiellus*, *Planophareus*, *Stenophareus*).

In this regard, taxonomic changes like the proposition of new genera (e.g. Kury, 2009, Pinto-da-Rocha and Tourinho, 2012, Kury and Villarreal, 2015), new combinations or generic revalidation (Colmenares et al., 2016, Villarreal et al., 2019b, Villarreal et al., 2021) have been published outside the framework of a phylogenetic analysis.

Due to the large amount of new information collected since Pinto-da-Rocha's (1997) review and the recent proposal of a homology hypothesis for genital macrosetae (Kury and Villarreal 2015), which opened the door to new interpretations of genitalic traits, the current phylogenetic scheme of Stygnidae may be considered outdated (as discussed in Kury and Villarreal, 2015). For this reason, using the tree proposed by Pinto-da-Rocha (1997) to evaluate the need for creating new genera would not be the best decision. A future analysis that includes recent information would be more desirable to generate a new hypothesis of phylogenetic relationships, however, that is beyond the scope of this work (a thorough reanalysis is the target of a larger ongoing project by one of the authors).

When the monotypic genus *Jabbastygnus* was described, the general pattern of its genital morphology was unique within the family, making generic comparisons difficult. Some of these characters described as diagnostic to *Jabbastygnus* are shared with the two species here described, which would alternatively allow its inclusion in this genus, i.e., LP separated from truncus by a deeply multiwrinkled toroidal region, a short glans, the position and arrangement of MS A, and the morphology of the LP. The genitalia of the two new species clearly resembles that of *Jabbastygnus*. However, the inclusion of the new species in *Jabbastygnus* would entail a reshaping of the generic diagnosis in such a way that many characters would have ambiguous or even opposite states (e.g. dorsal process on the stylus, size of MS E/ MS C, number of mesotergal areas, ornamentation of area III). This would make a generic identification difficult. Additionally, we have found at least some characters uniquely shared by the two new species and not by *Jabbastygnus*, which may be used to diagnose *Fortia*, such as: (1) absence of the dorsal process of stylus, (2) relative size of the MS E, (3) thickness of the MSC, (3) number of mesotergal areas, (4) presence of paired spines in mesotergal area III, (5) presence of metallic-colored spots on the DS. Likewise, a comparison of diagnostic characters can be made with other presumably related genera, aiming to aid in the identification (table 1). This is far from a complete survey or from a list of characters in a phylogenetic analysis, but our list provides quick means for distinguishing the Stygninae genera.

The coexistence of congeneric species inhabiting the same locality is not a common phenomenon in Gonyleptoidea, and it also depends on how the genera are defined. Few cases of sympatry have been recorded in the Stygnidae family, e.g., *Stygnoplus ianomami* and *S. neblina* in Brazilian Amazonia (Pinto-da-Rocha and Tourinho 2012), or *Eutimesius punctatus* and *E. albicinctus* in the Venezuelan Andean forest. However, at least in the latter case there could be segregation in the use of microhabitats (Villarreal et al., 2019 b). We have no evidence to confirm whether the pair of new species here represent a similar case, or for example, if they are distributed in different altitude gradients in the Sierra de Santa Marta, however, there is an altitudinal difference between the collection localities points of both taxa. Future studies focused on these areas and also on the microhabitat used by both species would be necessary to understand whether sympatric speciation occurred in this genus.

Finally, considering the frequent association of other stygnid species with cloud forests (i.e., *Eutimesius*, *Stenotygnellus*, *Stygnoplus*), the narrow distributional range of many of the species in this group (Pinto-da-Rocha, 1997), and the Sierra's own ecomorphology (which represent a mountainous enclave, isolated in the middle of an arid coastal landscape), as well as its consideration as a center of endemism and identified as biogeographical regions for multiple plant and animal groups (e.g. Cleef et al., 1984, Cracraft, 1985; Whitmore and Prance, 1987, Cadena et al., 2015; Hazzi et al., 2018), it is expected that both species here described represent cases of endemism for this mountain system.

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#### REFERENCES

- Bragagnolo, C. 2013. Two new species of *Protimesius* from northern Brazil (Opiliones: Laniatores: Stygnidae). *Zootaxa* 3620 (2): 283–292.
- Cadena, C.D., et al. 2015. *Henicorhina anachoreta* (Troglodytidae), another endemic bird species for the Sierra Nevada de Santa Marta, Colombia. *Ornitología Colombiana* 15: 82–89.
- Cleef, A.M., O. Rangel, T. Van Der Hammen, and R. Jaramillo. 1984. La vegetación de las selvas del transecto Buritacá. In T. Van Der Hammen and P.J. Ruiz (editors), *La Sierra Nevada de Santa Marta* (Colombia). Transecto Buritacá – La Cumbre. *Estudios de Ecosistemas Tropoandinos-ECOANDES*: 267–406. Germany: J. Cramer.

- Colmenares, P., W. Porto, and A.L. Tourinho. 2016. Taxonomic notes on the genus *Auranus* (Opiliones, Laniatores, Stygnidae), with description of two new species. *Zootaxa* 4103 (2): 117–129.
- Cracraft, J. 1985. Historical biogeography and patterns of differentiation within the South American avifauna: areas of endemism. *Ornithological Monographs* 49–84.
- DaSilva, M.B., and P. Gnaspini. 2010. A systematic revision of Goniosomatinae (Arachnida: Opiliones: Gonyleptidae), with a cladistic analysis and biogeographical notes. *Invertebrate Systematics* 23 (6): 530–624.
- Hazzi, N.A., J.S. Moreno, C. Ortiz-Movliav, and R.D. Palacio. 2018. Biogeographic regions and events of isolation and diversification of the endemic biota of the tropical Andes. *Proceedings of the National Academy of Sciences of the United States of America* 115 (31): 7985–7990.
- Kury, A.B. 2009. A new genus of Stygninae from a relictual rainforest in Ceará, northeastern Brazil (Opiliones, Laniatores, Stygnidae). *Zootaxa*, 2057: 63–68.
- Kury, A.B. 2014. Why does the Tricommatinae position bounce so much within Laniatores? A cladistic analysis, with description of a new family of Gonyleptoidea (Opiliones, Laniatores). *Zoological Journal of the Linnean Society* 172: 1–48.
- Kury, A.B., and M. Medrano. 2016. Review of terminology for the outline of dorsal scutum in Laniatores (Arachnida, Opiliones). *Zootaxa* 4097: 130–134.
- Kury, A.B., and M.O. Villarreal. 2015. The prickly blade mapped: Establishing homologies and a chaetotaxy for macrosetae of penis ventral plate in Gonyleptoidea (Arachnida, Opiliones, Laniatores). *Zoological Journal of the Linnean Society* 174: 1–46.
- Pinto-da-Rocha, R. 1990. *Stenostygnoides caliginosus* sp. n., primeiro registro de Stygnidae cavernícola (Opiliones: Laniatores). *Boletim do Museu Paraense Emílio Goeldi, série Zoologia*, Belém 6 (2): 121–127.
- Pinto-da-Rocha, R. 1997. Systematic review of the Neotropical family Stygnidae (Opiliones, Laniatores, Gonyleptoidea). *Arquivos de Zoologia* 33: 163–342.
- Pinto-da-Rocha, R., and A.L. Tourinho. 2012. Two new genera, 10 new species and new records of Amazonian Stygnidae Simon, 1879 (Opiliones: Laniatores). *Zootaxa* 3340: 1–28.
- Pinto-da-Rocha, R., and M.O. Villarreal. 2009. Cladistic analysis of the Stygninae and description of a new species of *Protimesius* Roewer, 1913 (Opiliones: Stygnidae). *Zootaxa* 2176: 48–56.
- Villarreal, M.O., and G. Machado. 2011. First record of paternal care in the family Stygnidae (Opiliones: Laniatores). *Journal of Arachnology* 39 (3): 500–502.
- Villarreal, M.O., and C. Rodríguez. 2006. Nuevos registros del género *Phareus* Simon, 1879 en Colombia con la descripción de una nueva especie (Opiliones, Stygnidae). *Boletín de la SEA* 38: 103–105.
- Villarreal, M.O., N. Sánchez, and A. de Ascensão. 2019a. New generic assignment to *Metaphareus punctatus* (Opiliones: Stygnidae) and observations about its reproductive behavior. *Iheringia (Serie Zoologia)* 109. [doi: 10.1590/1678-4766e2019008]
- Villarreal, O., L. Azara, and A.B. Kury. 2019b. Revalidation of *Obidosus* and description of two new cave-dwelling species of *Protimesius* from Brazil (Opiliones: Stygnidae). *Journal of Natural History* 53 (15–16): 965–989.
- Villarreal, O., A.B. Kury, and P.A. Colmenares. 2021. Contributions to the taxonomy of some Amazonian Stygnidae (Opiliones: Laniatores: Gonyleptoidea). *Zootaxa* 4984: 218–227.
- Whitmore, T.C., and G.T. Prance. 1987. *Biogeography and Quaternary history in tropical America*. Oxford: Clarendon Press.



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